United States Department of Agriculture
Bureau of Entomology and Plant Quarantine

A MOBILE INSECT-COLLECTING TRAP

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Crop and Garden Insect Investigations 1/

Each fall for a number of years the beet leafhopper (Eutettix tenellus (Bak.)) has been collected in large numbers, by the sweep-net method, for hibernation studies and other investigational work. Where the number of female insects desired was in excess of 30,000 it required the work of four or five workers for a period of from 1 to 2 weeks, depending upon the abundance of the insect, the temperature, and the wind velocity. The trap herein described was constructed to replace the method of sweep-net collection and to permit collecting on days when the sweep net is practically valueless as a collecting device.

Construction

The following material was used in constructing the trap:

1 piece clear pine (sides), 1/2" x 12" x 16'
1 piece 3-ply wood (bottom), 1/4" x 36" x 4'
1 piece clear pine (braces), 3/8" x 3-1/4" x 10'
1 piece clear pine (bearings and bottom reinforcements), 1" x 6" x 6'
1 piece clear fir (pole), 2" x 4" x 10'
2 pieces hardwood (runners), 1" x 1" x 8"
Screen moulding, 15 linear feet
1 piece mesh wire (30-mesh), 36" x 48"
1 piece mesh wire (1-inch mesh), 12" x 36"
1 axle, 1/2" x 47"
2 wheels, 5-1/2"
2 tires, 10" x 2.75"
1 piece sheet metal, 12" x 24"
2 bolts, 1/2" x 5"

The trap was constructed according to the diagrams in figures 1 and 2. The appearance can be improved and the weight reduced by

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1/ The writers are indebted to F. H. Harries for the drawings.

bringing in the sides to form the throat, thereby streamlining the cage. A hardware-cloth screen should be inserted in about the middle of the trap to prevent plant material from going back into the throat and the cloth bag. The air draft can be changed by using different materials to cover the top, thus changing the amount of air going through it.

Operation

The 2 by 4 inch pole was bolted to the front bumper of a car with the hitch end to the left, and the trap was hitched to the pole with wire cable, as shown in figure 3. The height of the trap was adjusted by placing the axle through the proper hole bored through both sides of the trap and bearing boards. The trap was hitched on the left side of the car to permit better observation by the driver of the car. The hitch was adjusted so as to prevent the trap from running under the car while turning. A small cloth bag was placed over the rear opening and fastened to the trap by a hook and a piece of inner tubing. The truck (fig. 4) was driven over the area at 15 or 20 miles per hour, and the air current forced the insects that moved in front of the trap back through the trap into the bag. At intervals the contents of the sack were dumped into cardboard tubes, and a cage was placed over the open end, into which the insects moved. On cool days the tubes can be warmed, thereby increasing the activity of the insects.

Effect on Leafhoppers

It seemed to members of the Twin Falls laboratory staff that leafhoppers collected by this method were not injured so much as when they were collected with the sweep net.

Uses

This type of trap can be used on range and abandoned lands, where cars can be driven, to collect large numbers of insects. For survey work it can be used in determining the occurrence and population of certain insects.

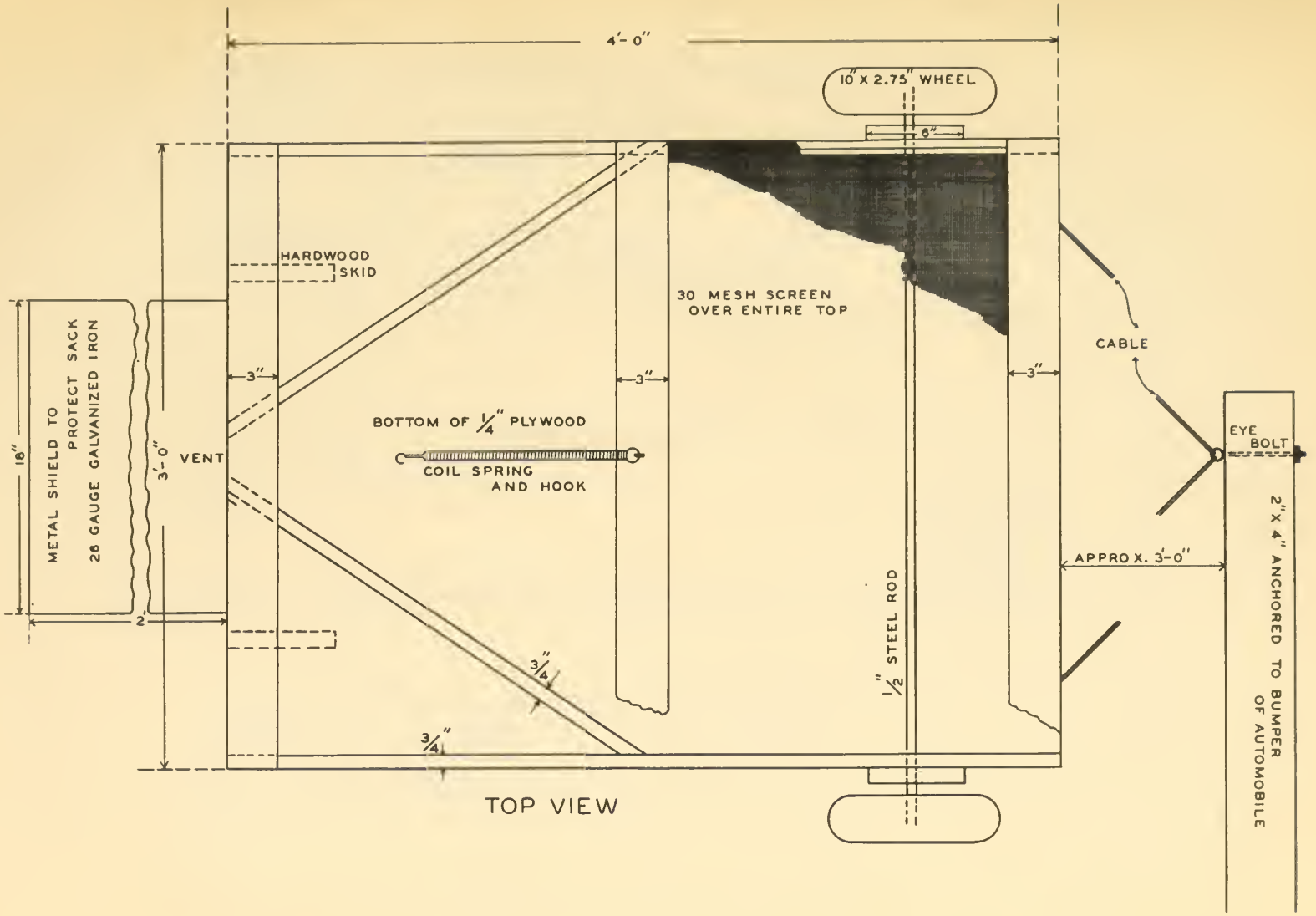

Figure 1.—Plan of trap for collecting insects.

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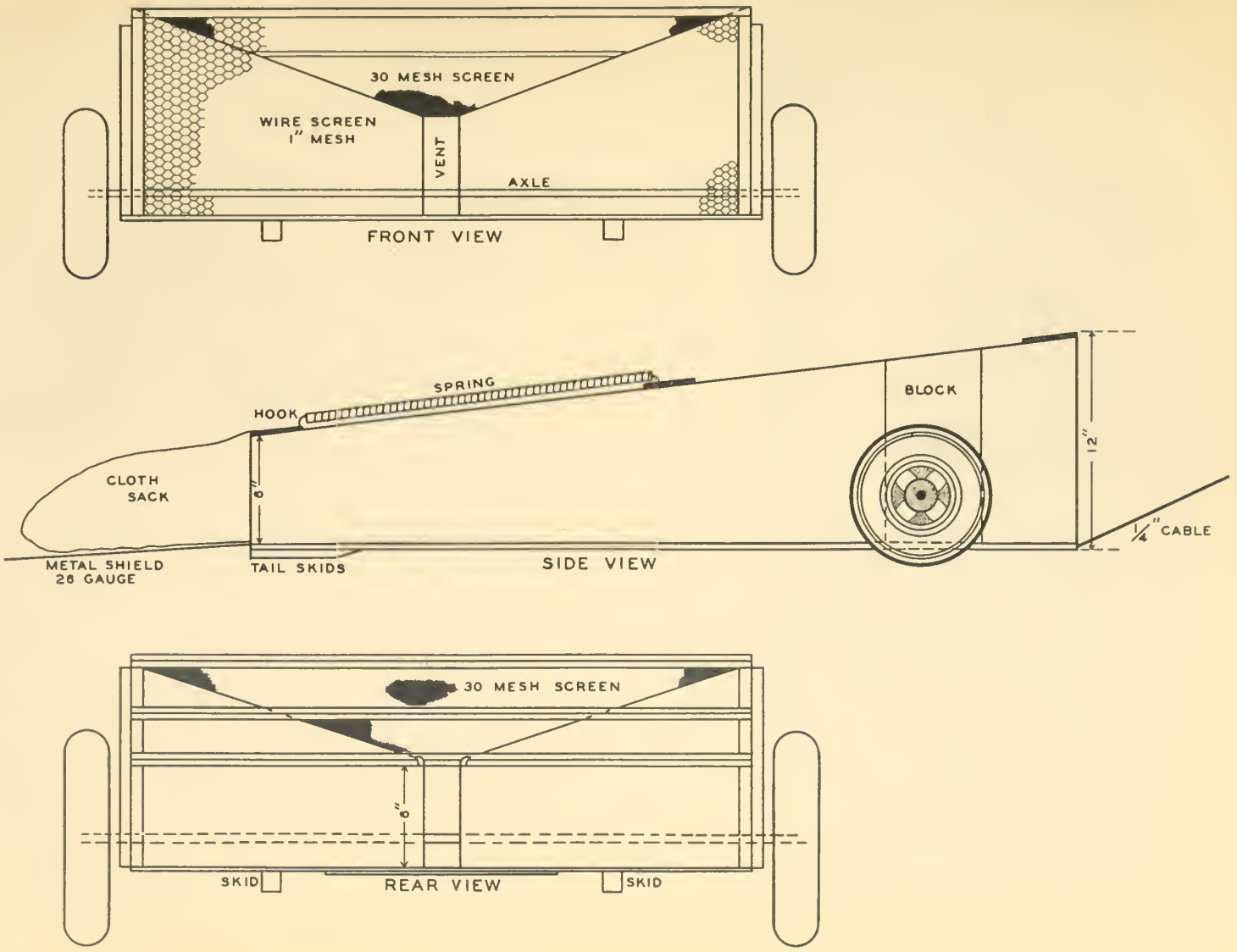

Figure 2.--Front, side, and rear views of trap showing construction.

Figure 3.—Side view of trap showing hitch.

Figure 4.—Trap in operation.

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